

CLAIMS

What is claimed is:

1. A display substantially comprising a subpixel repeating group, said subpixel repeating group comprising one of a first group, said group comprising:

W G W B W C W B W C W M
W R W G, W R W G, W R W G;

W R W G W B R B G R B G W
W G W B W R G W R, G W R B,
W B W R W G,

R G B W R B G R G B W R G W
B W R G, G W R, B W R G, B R G and

W W W W
R G C B
W W W W
C B R G

wherein W is substantially white, G is substantially green, R is substantially red, B is substantially blue, C is substantially cyan, and M is substantially magenta color.

2. The display of Claim 1 wherein further the white subpixels are substantially of smaller size than the colored subpixels.

3. The display of Claim 1 wherein said colored subpixels comprise substantially a first aspect ratio and said white subpixels comprise a second aspect ratio.

4. The display of Claim 1 wherein said colored subpixels and said white subpixels comprise substantially the same aspect ratio.

5. The display of Claim 3 wherein said first aspect ratio is 1:2 and said second aspect ratio is 1:3.

6. The display of Claim 1 wherein said subpixels are substantially rectangular shape.

7. The display of Claim 1 wherein the repeating subpixel group may comprise one of a second group, said second group further comprising: mirror images of repeating groups comprising said first group; symmetrical transformations of repeating groups comprising said first group and hex grid transformations of repeating groups comprising said first group.

8. The display of Claim 1 wherein said display is a liquid crystal display and the black matrix is substantially above the disinclination region.

9. The display of Claim 8 wherein the black matrix comprises differentially more area above the disinclination regions for the brighter subpixels.

10. The display of Claim 1 wherein said display further comprises a backlight and the temperature of said backlight adjusted such that a balanced white color is displayed with all subpixels on fully.

11. The display of Claim 1 wherein said at least one of the colored filters is selected to be a narrow bandpass filter.

12. The display of Claim 1 wherein the white subpixels are vertically displaced substantially 180 degrees with respect to the colored subpixels.

13. The display of Claim 5 wherein the backlight output is reduced such that brightness with all subpixels on fully is substantially the same brightness as an RGB stripe panel comprising substantially the same resolution.

14. A display substantially comprising a repeating subpixel group:

W G W B

W R W G

and said display further comprising a backlight, wherein said display comprises a balanced white point with all subpixels fully on.

15. The display of Claim 14 wherein said backlight is adjusted towards magenta such that said display comprises said balanced white point.

16. The display of Claim 14 wherein the green colored filter is adjusted to have a deeper green color point such that said display comprise said balanced white point.

17. A display substantially comprising a repeating subpixel group:

W C W B

W R W G

and said display further comprising a backlight, wherein said display comprises a balanced white point with all subpixels fully on.

18. The display of Claim 17 wherein said backlight is adjusted towards red color point such that said display comprises said balanced white point.

19. The display of Claim 17 wherein the green colored filter is adjusted to have a deeper green color point such that said display comprise said balanced white point.

20. A display substantially comprising a subpixel repeating group, said group further comprising white subpixels and a plurality of colored subpixels;

wherein said display further comprises a backlight, such that said display substantially has a balanced white point when all subpixels are fully on; and

further wherein at least one of the colored subpixels comprises a substantially greater area than said white subpixels.

21. The display of Claim 20 wherein the brightness of said backlight is substantially reduced to produce the same brightness of a second display having the same repeating group of subpixels wherein the aspect ratio of all subpixels in said second display is 1:3 when both said display and said second display have all subpixels fully on.

22. The display of Claim 20 wherein said display has a figure of merit approximately 60 percent or greater.

23. The display of Claim 20 wherein said display further comprises black matrix material, said black matrix material comprising substantially an area above the regions of disinclination of the subpixels.

24. The display of Claim 23 wherein said black matrix material is differentially more in area over bright subpixels.

25. The display of Claim 20 wherein said subpixel repeating group comprises a hex grid of colored subpixels.

26. The display of Claim 20 wherein said white subpixels are substantially vertically displaced from said colored subpixels.